

**APPARATUS AND METHOD FOR CONTROLLING POWER
DISSIPATION AND CONVECTIVE COOLING TO REDUCE
TEMPERATURE EXCURSION RATES IN A PROCESSING SYSTEM**

ABSTRACT OF THE DISCLOSURE

A transitioning of power dissipation in a processing device (11) is coordinated with the operation of a cooling system (16, 17, 18) for the processing device. A power transitioning arrangement (15) transitions power dissipation in the processing device (11) between a high power level and a relatively lower low power level. In conjunction with a transitioning of the processing device power level, the cooling system (16, 17, 18) is placed in either a high or low thermal impedance state to reduce the rate at which the temperature of the data processing device (11) and related elements change in response to the change in power dissipated by the processing device. Transitioning the power dissipation in the processing device (11) may be accomplished by gradually varying the clock rate for the device, by changing the clock rate to various processing elements in the device at different times, and/or by changing the instruction issue rate in the device.